Space Weather Forecast

Issued on Thursday, 14 March 2024 at 12:55 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of Moderate-class flares (Minor/Moderate (R1/R2) Radio Blackouts) day 1.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity has been Moderate, with peak flare observed at 14/0604 UTC from the complex group on the southwest limb. There are seven numbered regions on the visible disc. the aforementioned spot remains the largest and most complex group on the disc, although this is now difficult to analyse as is is in the process of transiting around the southwest limb. This region did contain a delta spot in its leading portion. The remaining spots are all small and simple.

There were no Earth directed coronal mass ejections observed in the past 24 hours, though the analysis of a large filament eruption in the north near centre disk is ongoing.

Solar Wind / Geomagnetic Activity: Solar wind speeds showed a slow rising trend, but remained slightly elevated throughout. The Interplanetary Magnetic Field (IMF), Bt, was on a gradual rising trend from weak to an average of moderate, with a peak observed at 14/0505 UTC. The north south component, showed a similar trend varying between moderately positive and weakly negative, becoming mostly positive with time, with the only sustained negative period observed early in the period. Geomagnetic activity was Quiet (Kp 1-2) with an Unsettled (Kp 3) interval between 14/1800-2100 UTC.

Energetic Particles / Solar Radiation: No solar radiation storms were observed, high energy (greater than 10MeV) proton flux remained at background throughout.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a Chance of Moderate-class flares, most likely from a complex spot on the southwest limb on day 1 (14 Mar), this reducing to a slight chance from day 2 (15 Mar) onward, as the aforementioned spot rotates completely around the southwestern limb.

Solar Wind / Geomagnetic Activity: A single coronal mass ejection remains in the forecast, from the moderate-class flare on 10 March, though is now assessed as a likely miss. There remains a diminishing chance of a slight interaction with Earth later on 14 Mar, though this is now very low confidence. A weak coronal hole high speed stream is assessed as ongoing, with minimal affect on geomagnetic activity. A small negative polarity coronal hole may come into effect later on days 3 and 4 (16-17 Mar).

Mostly Quiet to Unsettled conditions are therefore expected over the next few days, with a slight chance of Active/G1 Minor Geomagnetic Storm on day 1 (14 Mar) should the 10 Mar coronal mass ejection materialise.

Energetic Particles / Solar Radiation: High energy proton flux is expected to persist at background or close to background levels, with a very slight chance of S1 Minor Solar Radiation Storms on day 1 (14 Mar), with the main risk from the largest sunspot region.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	5	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	20	10	20
Very Active	R3 to R5 X	No	5	1	1	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.